New Drug Treatment for Large B-Cell Lymphomas or Other Hematopoietic Malignancies

Tech ID: 20873 / UC Case 2008-071-0

BACKGROUND

More than 60,000 people in the United States are diagnosed with lymphoma each year and the prognosis for those affected is usually poor. In many cases, patients may respond initially to first-line treatments (e.g. chemotherapy, radiotherapy), but subsequently suffer a relapse. In other cases, a patient may fail to respond to any treatment (refractory cancer). For patients diagnosed with relapsing cancers or patients resistance to conventional treatment, there are no optimal or preferred treatment options, resulting in a poor prognosis. Additional treatment options are needed for this group of lymphoma patients.

TECHNOLOGY DESCRIPTION

Addressing the need for new treatment options for the patients with indolent lymphomas, UC San Diego researchers have developed a new method to detect and treat lymphomas, including forms of non-Hodgkin lymphoma, based on targeting tumor necrosis factor-alpha signaling (TNF-alpha; a multifunctional pro-inflammatory cytokine).

This technology is focused on providing new treatment methods for the group of lymphoma patients characterized as resistant to conventional treatment. Specifically, this technology provides a means for: (a) detecting altered expression of microRNAs (i.e. miR21, miR155), phosphatase and tensin homolog deleted on chromosome ten (PTEN), and SH2-containing inositol phosphatase (SHIP-1; enzyme that hydrolyzes inositol 1,4,5-triphosphate) characteristic of hematopoietic malignancies; and (b) administering an effective amount of proven TNF-alpha inhibitors (i.e., neutralizing anti-TNF-alpha antibodies or soluble TNF-alpha receptor).

The differential expression of a miR155 and SHIP-1 may provide a means to identify lymphoma patients that have a poor prognosis or will respond to treatment with a TNF-alpha inhibitor.

STATE OF DEVELOPMENT

The inventors recorded elevated levels of miR-155 and consequent diminished SHIP-1 expression in diffuse large B cell lymphoma (DLBCL) that are the result of autocrine stimulation by the pro-inflammatory cytokine tumor necrosis factor (TNF). Standard anti-TNF regimens were sufficient to reduce miR-155 levels and restored SHIP-1 expression in DLBCL cells with an accompanying reduction in cell proliferation. This finding suggests that cytokine-regulated miRs may be a crucial link between inflammation and cancer and supports the feasibility of anti-TNF therapy as a novel and accessible treatment for DLBCL.

RELATED MATERIALS

- An international patent application was filed on 22-Jan-2009 and published 06-Aug-2009 (Doc No. 2009097095). Consult this document for a detailed description of this offered technology.
- Pedersen IM, Otero D, Kao E, Miletic AV, Hother C, Ralfkiaer E, Rickert RC, Gronbaek K, David M. Onco-miR-155 targets SHIP1 to Promote TNF-Alpha-Dependent Growth of B Cell Lymphomas. EMBO Mol Med. 2009 Aug;1(5):288-95.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,883,155	11/11/2014	2008-071

CONTACT

University of California, San Diego
Office of Innovation and Commercialization
innovation@ucsd.edu
tel: 858.534.5815.

INVENTORS

- David, Michael

OTHER INFORMATION

KEYWORDS

lymphoma, B-cell, tumor necrosis factor-alpha, microRNAs, MIRN21, MIRN155, SH2-containing inositol phosphatase (SHIP-1), gene expression

CATEGORIZED AS

- **Medical**
  - Diagnostics
  - Disease: Cancer
  - New Chemical Entities, Drug Leads

RELATED CASES

2008-071-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Polyclonal Antibodies to IRF3

University of California, San Diego
Office of Innovation and Commercialization
9500 Gilman Drive, MC 0910, ,
La Jolla,CA 92093-0910

Tel: 858.534.5815
innovation@ucsd.edu
https://innovation.ucsd.edu
Fax: 858.534.7345